

As far as renewable resources are concerned, there are critical problems in Afghanistan.

a) Range Management: Afghanistan is a country with a developed animal husbandry. Stockbreeding has been a main occupation of the population for ages. The annual breeding of more than 20,000,000 sheep (5,600,000 of which are karakul type), 3,3000,000 goats and more than 5,000,000 cows, buffaloes, donkeys, horses, and camel attest to this fact.

Understanding and controlling the close interaction between the ranges in Afghanistan and their productive condition and the potentialities of growing more karakul pelts, wool and woolen products, meat, milk and milk products are extremely important for the future of the country. Livestock produce more income than any other agricultural item in Afghanistan. The ranges are usually fully stocked so that all feed is used in a normal year. As a result of two successive drought years (1970-71) there is heavy live stock loss because no provision has been made for supplemental feed. This great animal loss will directly affect the karakul, rug and wool production.

Grassland, which covers about 80 percent of Afghanistan, provides natural pastures for sheep and cattle, and the principal food crops, mainly wheat are grown in these regions. However, no one type has been abused to a greater degree by people in our country. Even today, the great mass of people fail to understand the limiting factors involved, and, as a result, thousands of

acres continue to be converted into useless desert. The basic problems of range management is overgrazing. Signs of various degrees of overgrazing may be seen everywhere in Afghanistan. At present, two-thirds of our total topsoil has been removed by erosion. This is due primarily to the widespread practice of one-crop planting and to the destruction of pastures by the grazing of too many sheep and cattle per acre. Overgrazed areas of the country suffer from floods during the spring and dust storms during summer and autumn. Overgrazing leads to the removal of the leaves of the grass, prevents seed production, and ultimately causes the death of grass roots which hold the soil against wind and rain erosion. For the future of our country as a whole, there is no more important phase of applied ecology than range management. The Royal Ministry of Agriculture has taken some measures to establish various pasture improvement stations in various parts of the country, and also has drawn up a pasture law.

Most of the forest areas of Afghanistan are located in the northeastern and southeastern provinces. Large sections of these areas have been severely overcut. At present, trees are one of the most widely used natural resources in Afghanistan. Recently, a group of German specialists in the Paktia Development Project has begun working with Afghans on reforestation projects in Paktia Province. In other parts of the country the problem of deforestation remains unsolved. The hills around Kabul, which were once full of vegetation, now are not. As a result, almost daily dust storms occur. These

storms pollute the atmosphere and contribute to the spread of disease.

b) Wildlife Management: The expression "wildlife" is largely used with reference to game and fur-bearing vertebrates. The principle of ecological succession is basic to wildlife since each game species is best adapted to a particular seral stage. As a result of degradation of a number of ecosystems in Afghanistan, deer, partridges, ibex and wild sheep (ovis ammon) are found only in high mountains. Species not adapted to this new habitat have decreased or disappeared.

To increase game population, efforts have to be directed along three major lines: (1) preservation of breeding stock by means of game laws restricting the harvest; (2) artificial stocking; and (3) habitat improvement. There is no data available on game population density on which to base hunting regulations. Improvement of census methods is constantly needed. When game begins to get scarce, people generally think and act in the order listed above. This is sometimes unfortunate, since the third item is often more important than the first two. If suitable habitat is lacking, protection or stocking is useless.

Artificial stocking can be accomplished by the introduction of new species into a new environment. Stocking, therefore is generally useful only in a new environment, in an environment from which the species in question has previously been exterminated, or perhaps where hunting pressure is very great.

The size of game populations will depend on the extent of habitat and the primary productivity of that habitat. Thus, habitat improvement is the most effective method of increasing game, although possibilities vary with the region. Success in this venture requires much study and experimentation and often does not bring the quick results the sportsman desires. In the long run, it is the only sound way to game abundance. For example, an effective forest edge can be created by planting lessedazas (legumes) of two heights. Not only do these plants enrich the soil and provide cover but their seeds provide food for quail, etc.

IV. POLLUTION OF THE ENVIRONMENT BY INSECTICIDES

The accumulation of various toxic substances in the biosphere is leading to complex changes in the structure and physiology of ecosystems. The problems caused by pollution are of interest from two viewpoints. Practical people-toxicologists, engineers, health physicists, public health officials, intensive users of the environment--consider pollution primarily as a direct hazard to man. Others, no less concerned for human welfare but with less pressing public responsibilities, recognize that toxicity to humans is but one aspect of the pollution problem, the other being a threat to the maintenance of a biosphere suitable for life. The first viewpoint leads to emphasis on human food chains; the second leads to the emphasis on human welfare insofar as it depends on the integrity of the diverse ecosystems on the earth,

the living systems that appear to have built and now maintain the biosphere. The structure of these systems is now being changed all over the world. We know that as far as our interest in the next decades is concerned, pollution operates on the time scale of succession, not of evolution, and we cannot look to evolution to cure this set of problems.

The chemical control of insects, although primarily an entomological and chemical problem, also enters the realm of ecology since organisms other than the intended victim may be affected. This is especially true when DDT is used in houses for controlling lice or out-of-doors for other purposes. By virtue of biogeochemical cycling, the DDT that is used to control lice and mosquitoes has a potential toxic effect on other biotic components of ecosystems. In Afghanistan, DDT is widely used as an insecticide, both in houses and in the fields. It is significant to note that a substantial proportion of insecticides collects on plant surfaces and can this be passed directly along a food chain. There is evidence to suggest that the DDT interferes with calcium metabolism, resulting in symptoms of calcium deficiency, as well as creating hormonal disturbances resulting in delayed ovulation and inhibition of gonad development. Since 1962, new studies have underscored the hazard of DDT. This channelled phenomenon has become quite widespread across the United States. Excessive use of insecticides is also creating other problems,

such as the development of resistance by pests themselves.

VI POOR MEDICAL SERVICES

In the past, health conditions in Afghanistan were notogiously poor, and for the most of the people, sanitation measures were vitually unknown. As a result, the mortality rate was very high due to epidemics of such "filth diseases" as typhus, cholera, plague, typhoid and dysentary. Many of this group are especially important in the warmer regions of the country. Prevention of water-borne diseases and general sanitation are other areas which have ecological aspects.

Animals involved as intermediate hosts in the transfer of diseases to man include the biting diaphera (mosquitoes, lice) arachinids (ticks) and mammals (especially rodents). Consequently, it is the ecology of these animals that primarily concerns the public health biologists. Control of specific disease carriers is often accomplished more efficiently and cheaply by control of the organism's environment than by direct attack on the organism itself. Such control, however, involves other effects which must also be considered. Therefore, the public health biologists cannot ignore the total ecosystem if he is to (1) effectively separate cause from effect, and (2) avoid undesirable side effects.

In the prevention of animal-borne disease the life history and parasitehost relations of animals involved must first be studied.

Next in importance are various aspects of the population ecology of the carriers of the pests.

Improvement of health of the Afghan people has remained high on the priority list of government, but at present there still are not enough doctors and medical facilities to provide adequate medical care for the people of Afghanistan. Through massive programs of vaccination and through nationwide "health campaigns" to control malaria, smallpox, typhus and cholera the Afghan government has achieved considerable success in improving the environmental conditions, and consequently, the health of the population.

VII. AGRICULTURE

The process of agricultural development often involves the transformation of low productivity system of agriculture into systems where productivity is relatively high. In the course of this transformation, cultivation practices on existing lands are improved, the infra-structure of facilities and services for agricultural production is expanded, and new lands brought under cultivation through extensive system of irrigation and river basin development. These changes are crucial to the development process itself. But they may also generate environmental side effects of varying degrees of importance. Some of the more common of these side effects are described here.

Traditional agriculture in many parts of the country is characterized, particularly under stress of expansion, by a range of environmental hazards. These include leaching-notably the rapid leaching of nutrients and degradation of planted farmland following the removal of a forest; rapid soil depletion resulting from permanent cultivation which the relative infertility of the soil cannot support without the addition of nutrients, soil erosion through variable and heavy rainfalls, and winds and flash floods, and indiscriminate loss of forest resources. Although much of this kind of environmental deterioration can be corrected if unlimited funds are available.

The environmental hazards in the case of modern agriculture rise mainly from the chemical control of weeds and pests and from irrigation works. Fertilizers, on the other hand, would not appear to pose a threat at the present even at prospective level of their use in Afghanistan. The side effects of insecticides and pesticides need to be watched fairly carefully. Their toxicity to fish and birds as well as their persistence and mobility make them a hazard beyond their target. Irrigation projects, unless matched by drainage facilities, can result in salinization and water logging.

RECOMMENDATIONS

1. We must develop in each country and internationally a vigorous environmental policy. Up to now we have had no environmental policy

in our country.

We also need an international policy. Because the environment is an international problem. Most environmental issues are international in nature. The winds blow in all directions and the waters wash many shores. Therefore, we cannot pollute the waters at home without finally, through several reverberations, having it end up in the waters or atmosphere of our neighbor.

2. We must work out a new concept of social and economic progress which will no longer be progress concentrated in the developed world but really worldwide progress because poverty anywhere represents a danger for prosperity everywhere.

3. Both developed and developing countries should work together in fighting environmental pollution. This means we should approach environmental policies in a really global way and for the benefit of all over the world.

4. The environmental crisis demands immediate and total response from business, government and universities. The citizens should know that this small planet is an ecological system. This concept is basic to any planning for the improvement of our environment. The universities should develop effective programs of action or research focused on environmental problems. Any profound disturbance in the ecological equilibrium is a threat to the maintenance of human life as we know it now.

5. Each country should establish an environmental department

within the framework of university to slow down the environmental pollution, to preserve the natural resources for both present and future generation and to do some environmental researches.

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Environmental Problems of Afghanistan

I. INTRODUCTION

The story of man's relationship with the natural environment dates back to the dawn of man's emergence as the dominant species on our planet. More than one million identified species of animals and plants inhabit the earth. Of these, only man (homo sapiens) can in part control and modify his environment. Because of this ability, he now dominates the earth to an extent probably never before approached by any other species.

But it is only recently that "environment" has become public issue on a global scale. It first arose in the highly industrially advanced countries. The creation of large productive capacities in industry and agriculture, the growth of complex systems of transportation and communication, population growth, the evolution of massive urban conglomerations, atomic explosion, have all been accompanied in one way or another by damage and disruption to the human environment. Such disruptions have created serious hazards to human health and well being. In some ways, in fact, the dangers extend beyond national boundaries and threaten the world as a whole.

According to a current idiom, the world's ills involve the three P's--pollution, population and poverty.

The environmental problems of developing countries fall broadly into two categories:

1. The problems arising out of poverty or the inadequacy of development itself. These problems include: traditional agriculture, inadequate potable water, inadequate sewage system, diseases, malnutrition, poor housing, undereducation and unemployment.

These are problems, no less than those industrial pollution that clamour for attention in the context of the concern with human environment. They could be overcome by the process of development itself.

2. The problems that arise out of the very process of development. The process of development in agriculture, industry, transport, public health, education and human settlement, has many side effects. These side effects take several forms and may be grouped into a number of categories. These are the following:
- a) Resource deterioration, the deterioration for example of mineral, soil or forest resources,
 - b) Biological pollution, the pollution represented by agents of human disease and by animal and plant pests,
 - c) Chemical pollution, arising out of air pollutants, industrial effluents, insecticides (DDT), metal and detergent components and similar agents,
 - d) Physical disruption as reflected by thermal pollution, siltation and sound pollution,
 - e) Social disruption of which congestion and loss of a sense of community are examples.

To the extent, some of the advanced consequences of the process of development could be avoided by better planning and regulation. The developing countries have an opportunity to profit from the experience of the advanced countries. The experience of advanced countries has shown that these side effects could, if ignored, attain formidable dimensions and cause damage and disruption on a wide scale. The developing countries have an opportunity to avoid some of the mistakes or distortions that have characterized the development process in the past. By paying attention to these dangers they can attain a more satisfactory pattern of development than that achieved

by the advanced countries.

The problems arising out of the process of development are in evidence in Afghanistan to an extent that depends on her relative levels of development. Indeed, this problem is likely to assume increasing importance. The processes of agricultural growth and transformation, for example, involve the construction of reservoir and irrigation systems, the use of fertilizers and insecticides and the establishment of new communities. These processes will certainly have environmental implications. Similar industrialization will result in the release of pollutants and reaction on the environment in a number of ways. Urbanization is already a pressing problem for many cities in Afghanistan. In addition, with the urgently need for the rural areas to sustain a growing population the problems of rural environment assume a new significance. In the absence of resolute action, they will tend to attain formidable dimensions in the decades ahead.

Some of the critical environmental problems in Afghanistan will be discussed in the following chapters:

II POPULATION GROWTH

Global ecologists point out that our planet is in fact a space vehicle with a mushrooming human population and a balanced, continuously recycling of life-support system. There is a prediction the world's population would double by the year 2005 unless the birth rate significantly declines from its current

two percent a year.

It has been estimated that human population of 6000 B.C. was about five million people, taking perhaps one million years to get there from two and a half million. The population did not reach 500 million until about 8,000 years later--about 1650 A.D. This means it doubled roughly once every thousand years or so. It reached a billion people around 1850, doubling in some 200 years. It took only 80 years or so for the next doubling, as the population reached two billion around 1930. We have not completed the next doubling to four billion yet, but we now have well over three billion people. The doubling time at present seems to be about 35 years. Quite a reduction in doubling times: 1,000,000 years, 1,000 years, 500 years, 80 years, 35 years.

The population of Afghanistan was estimated at about 10,000,000 in 1937.* Thirty five years later, in 1972, it has risen to a level of 17,000,000. In Afghanistan the population is estimated at the rate of approximately 2.3 percent per year. At 2.3 percent increase per year, the population of Afghanistan would double every thirty years. The upsurge of the human population and its skyrocketing demands for food, living space and education pose difficult problems in economic development. Although recently food production is expanding much faster than during the last decade, there is still a wide gap between

*No data is available on population before 1937

population growth and food production. As the result of two successive drought years in 1970-71, there was a shortage of wheat supplies throughout the country and the price of wheat and rice per kilo was almost doubled. There was also shortage of animal food throughout the country. Present food supplies are inadequate for the nation. 1972 was a good rainy year and the agricultural production was very satisfactory and the price was dropped considerably.

The rate of population growth in Afghanistan is shown in Table I. **

TABLE I *

<u>Year</u>	<u>Population</u> (in million)	<u>Increase/Annum</u> (in millions)	<u>Rate of Growth/</u> <u>Annum</u> (in percent)
1960-61	13.40	----	---
1961-62	13.67	0.27	2.0
1962-63	13.94	0.27	2.0
1963-64	14.22	0.28	2.0
1964-65	14.50	0.28	2.0
1965-66	14.79	0.29	2.0
1966-67	15.08	0.29	2.0
1967-68	15.43	0.35	2.3
1968-69	15.78	0.35	2.3
1969-70	16.14	0.36	2.3
1970-71	16.51	0.37	2.3
1972	17.00	0.38	2.3

Estimates recorded in Table I indicates that Afghanistan's population is growing very fast. The population growth in the city of Kabul is 3.5 percent per year, due to natural natality and inward migration of people from the rural areas. For the country as a whole the estimated population growth rate is 2.3

percent per year. If the population continues to grow at approximately this rate with no checks applied, there will be almost 34 million people in Afghanistan in the year 2002^{**}. The natality rate is 35 per thousand and the mortality is 13 per thousand.^{***} A major reason for the increase in human population is the reduction in infant mortality accomplished through the application of new medical and environmental technology.

Because of rapid urbanization socio-economic problems are created such as over-crowding, poor housing, inadequate waste disposal, inadequate potable drinking water, unemployment under-reduction and poor family health.

Virtually all organized efforts of population control in this country are founded on the "family planning" approach. The assumption is that this is an effective means of regulating growth. In 1969, the Afghan Family Guidance Association (AFGA) was formed in Kabul. Under this program five clinics in Kabul and several others in provinces were established and some educational work and publicity was carried out to popularize the concept of family limitation. The methods offered were intra-uterine device known as the loop, condoms and contraceptive pills.^{****} But the paradox is that the principle of family planning stresses the right of

* Source: Department of Demography, Ministry of Planning, 1970

** Calculated on the basis of 2.3 percent growth per year.

*** The Geographical Review of Afghanistan, Vol.IX, No.1 (August, 1970)

**** AFGA, Newsletter, November 1970

parents to have the number of children they want, not the right of society to have the number of children it needs and can support. Also, on Human Rights Day, December 10, 1967, the Secretary-General of the United Nations announced that thirty world leaders had signed a statement in support of the right of parents to have the number of children they want when they want them. This situation creates a dilemma. So long as families want more children, a population will continue to grow. Thus, there is little question that so long as the family is "free" to plan its size, there will be increased population growth.

Another dilemma, Afghanistan is an underdeveloped country with old farming methods. Therefore, children are extremely important to parents as extra hands to work on the farm and as support in old age.

At least for the present then, the resolution is not only one of the control but also coping with ever increasing numbers.

As regards the population problem in Afghanistan, I propose four methods of solution:

- a) The present natural resources must be surveyed and classified. To accomplish this, a Five-Year Biological Program should be planned and initiated. On the basis of program, a group of biologists should study thoroughly both the terrestrial and aquatic biological communities. In light of their studies, these biologists should

establish a land-use classification map based upon the productivity of different biotic communities. On the basis of productivity, all eco-systems should be classified into fertile, semi-fertile, and unproductive. Present agricultural lands should be differentiated into total arable lands, total cultivated lands, total forest and total deserts. Such a land classification would play an effective role in the acceleration of agricultural development and livestock breeding.

b) In Afghanistan, wheat, the dietary staple, must be grown in large quantities. The production of wheat can be increased in two ways:

1. Increase of production per acre through the improved seeds, better application of chemical fertilizers, and use of better agricultural equipment.
2. Increase of the total number of acres under cultivation. At present out of 160 million acres of total land there is only 24 million under cultivation. It is possible to utilize desert regions for agriculture, by irrigating with surface water or with water from deep or karezes. There are many uncultivated lands in northern, southern and western Afghanistan. International cooperation is necessary in order to achieve these goals.

c) A redirection of population policy aimed toward population control, such as:

1. The raising of marriage age
2. The freedom of information about contraception and distribution of contraceptive products.

d) Education, particularly higher education, is critically important to solving our environmental problems. The inclusion of such subject matter as reproductive physiology, ecology, sex education, pre-marital counseling and family planning in the curriculum of the Colleges of Science and Education. The basic idea behind the above program would be to expose and create positive thinking toward community problems in a group of educators who would become high school teachers. At present, our university does very little research on survival and ecology.

III. DEPLETION OF NATURAL RESOURCES

It is customary to divide natural resources into two categories, renewable and non-renewable. The non-renewable resources are still mostly untouched, due to poor roads, lack of personnel, and above all, lack of money. As an illustration of this fact, the second largest known deposit of iron ore in the world remains untapped in Haji-Gack, Bamiyan. At present, natural gas is being piped out to the Soviet Union, and coal is being used for domestic purposes.

SEMINAR ON AFGHANISTAN AND INDIA
IN THE 20TH CENTURY

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